MEMORANDUM

TO: Public Works Committee, City Council

FROM: Steven Frooman, P.E.
Traffic Engineer, Public Works/Engineering Services

SUBJECT: 5th Street and Main Street Intersection Safety Improvements

DATE: September 1, 2017

Because it will be an obvious change to a highly traveled downtown street, I am providing this summary of an upcoming traffic safety improvement for your information.

At the prompting of the Police Department, the Public Works Traffic Operations Division will be making modifications to the northbound lanes of 5th Street in order to improve the safety of the 5th Street and Main Street intersection. City Staff will be modifying the existing 5th & Main signal, replacing traffic signs, and modifying pavement and curb markings along northbound 5th Street from St. Joseph Street to the RCP&E railroad tracks.

The Police Department has identified the 5th Street and Main Street intersection as a persistent problem for traffic safety in Rapid City. It was, in fact, the highest crash location in Rapid City in 2014 and was the 7th highest crash intersection in 2015. The RCPD provided me their analysis of crashes at this location and identified the existing northbound lane configuration as a significant source of the safety problems at the intersection. I have completed my own analysis and I agree with their conclusions. I also agree with the solution Chief Jegeris proposed to the Public Works Department, and so per §10.28.010 and §10.28.050 of the Rapid City Municipal Code I am having the following changes made:

Existing Lanes, 5th St. Northbound @ Main St: 1 Left, 1 Thru/Left, 1 Thru, 1 Parking
Future Lanes, 5th St. Northbound @ Main St: 2 Left, 2 Thru
As part of my analysis, I counted the evening traffic volumes at the intersection to confirm that a single left turn lane would have insufficient capacity to serve the northbound-to-westbound left turn demand.

Because the required work is within our in-house capabilities, I intend for Traffic Operations staff to perform the work during September using materials and funds within our 2017 budget.

In order to ensure that the thru lanes line up on both sides of Main Street, it will be necessary to remove some of the underutilized on-street parking along northbound 5th Street between St. Joseph Street and the railroad tracks. Currently, there are 5 such spaces on the east side of 5th Street north of Main Street. Checking their occupancy 11 times between 8 AM and 6 PM on summer weekdays, I observed 0 spaces occupied 5 times, 1 space occupied 3 times, and 2 spaces occupied 3 times. At least 3 of the 5 spaces were unused every time I checked. Use of the 4 spaces on the east side of 5th Street between St. Joseph Street and Main Street was also low. Accordingly, the spaces will be removed per City Code §10.40.010.A in order to make room for the second lane of northbound through traffic.

Once I have finalized the design, including any changes to the intersection’s signal timing to more efficiently use the safer lane configuration, message boards and public service announcements will be used to inform 5th Street’s users prior to actual implementation of these changes.